

REMARKS/ARGUMENTS

Claims 2-21 and 23-26 have been resubmitted. Claims 2, 13, 21, and 23 have been amended. Claims 1 and 22 have been canceled. New Claims 27-36 have been added.

The Examiner rejected claims 1, 13-15, and 21-26 under 35 U.S.C. Section 102(b) as being anticipated by Laing (US 3,227,902). The Examiner rejected claims 21-22 under 35 U.S.C. Section 102(b) as being anticipated by Sasaki et al. (US 5,844,334). The Examiner rejected claims 16-17 under 35 U.S.C. Section 103(a) as being unpatentable over Laing (US 3,227,902). The Examiner rejected claims 23 and 26 under 35 U.S.C. Section 103(a) as being unpatentable over Sasaki et al. (US 5,844,334) in view of Kummer et al. (US 5,315,193). The Examiner rejected claims 24-25 under 35 U.S.C. Section 103(a) as being unpatentable over Sasaki et al. (US 5,844,334).

Allowable Subject Matter

The Examiner stated that claims 4-7, 8-12, and 18-20 are allowed.

The Examiner objected to claims 2-3, but stated that claims 2-3 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Laing (US 3,227,902)

Laing discloses a cooling system for electrical machinery in which the air path through the machinery (motor) is double the length of the air path in a conventional axial air flow arrangement, in that the air flows axially first in one direction and then axially in the opposite direction.

The Examiner rejected claims 1, 13-15, and 21-26 under 35 U.S.C. Section 102(b) as being anticipated by Laing.

Claim 1 has been cancelled. The rejection of claim 1 is therefore rendered moot.

Claim 13 has been amended to recite a plurality of rotor fins axially spaced downstream from the impeller, the rotor fins projecting radially outward from the cylindrical outer surface of the shaft.

Laing does not disclose a plurality of rotor fins axially spaced downstream from the impeller, the rotor fins projecting radially outward from an outer surface of the shaft.

Accordingly, claim 13 is not anticipated by Laing. Furthermore, applicant submits that claim 13 as amended defines an invention which is unobvious over Laing.

Furthermore, claim 13 recites a *plurality* of through inlet holes and a *plurality* of through outlet holes.

In contrast, Laing does not disclose a plurality of through inlet holes and a plurality of through outlet holes.

Claims 14-15 depend directly or indirectly from claim 13. Therefore, claims 14-15 are not anticipated by Laing for at least those reasons given above with respect to claim 13 as amended.

Claim 21 as amended recites providing a shaft housed within the motor housing, the shaft having a rotor, the rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft. Claim 21 has been further amended to recite directing air radially inward through a through inlet hole into a rotor.

Laing does not disclose a rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft. Nor does Laing disclose directing air radially inward through a through inlet hole into a rotor.

Accordingly, claim 21 is not anticipated by Laing.

Claims 22-26 depend directly or indirectly from claim 21. Therefore, claims 22-26 are not anticipated by Laing for at least those reasons given above with respect to claim 21 as amended.

The Examiner rejected claims 16-17 under 35 U.S.C. Section 103(a) as being unpatentable over Laing (US 3,227,902).

Claims 16-17 depend directly from claim 13. Claim 13 as amended recites a plurality of rotor fins axially spaced downstream from the impeller, the rotor fins projecting radially outward from the cylindrical outer surface of the shaft.

In contrast, Laing does not teach or suggest a plurality of rotor fins axially spaced downstream from the impeller, the rotor fins projecting radially outward from an outer surface of the shaft.

Applicant submits that claims 16-17 each define an invention which is unobvious over Laing.

Furthermore, claim 16 recites the shaft comprises aluminum. Claim 17 recites the impeller comprises aluminum.

In contrast, Laing does not teach or suggest a shaft, nor an impeller, of aluminum.

Sasaki et al. (US 5,844,334)

Sasaki et al. discloses a traction motor that may be cooled by forcing outside air through an inlet hole and into a motor frame by a fan provided at the position of the intake hole.

The Examiner rejected claims 21-22 under 35 U.S.C. Section 102(b) as being anticipated by Sasaki et al. (US 5,844,334).

Claim 21 as amended recites providing a shaft housed within the motor housing, the shaft having a rotor, the rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft.

Sasaki et al. does not disclose a rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft.

Accordingly, claim 21 is not anticipated by Sasaki et al.

Claim 22 has been cancelled. The rejection of claim 22 is therefore rendered moot.

The Examiner rejected claims 24-25 under 35 U.S.C. Section 103(a) as being unpatentable over Sasaki et al. (US 5,844,334).

Claims 24-25 depend directly from claim 21. Claim 21 as amended recites providing a shaft housed within the motor housing, the shaft having a rotor, the rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft.

In contrast, Sasaki does not teach or suggest providing a shaft having a rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft.

Applicant submits that claims 24-25 each define an invention which is unobvious over Sasaki et al.

Kummer et al. (US 5,315,193)

Kummer et al. discloses an electric machine tool including a motor for driving a tool part (such as a grinder or circular saw) and a rotary blower for cooling the motor. The rotary blower has a spirally wound air duct guide in communication with a fan wheel, wherein the duct widens from an inlet opening to an outlet opening.

The Examiner rejected claims 23 and 26 under 35 U.S.C. Section 103(a) as being unpatentable over Sasaki et al. (US 5,844,334) in view of Kummer et al. (US 5,315,193).

Claims 23 and 26 depend directly from claim 21. Claim 21 as amended recites providing a shaft housed within the motor housing, the shaft having a rotor, the rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft.

In contrast, Kummer et al. does not teach or suggest providing a shaft having a rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft.

Applicant submits that claims 23 and 26 each define an invention which is unobvious over Kummer et al.

New Claims

New claim 27 depends directly from claim 13. Therefore, applicant submits that claim 27 is patentable for at least those reasons given above with respect to claim 13 as amended.

Furthermore, new claim 27 recites the plurality of rotor fins extend axially from the rotor.

None of the cited references, taken singularly or in combination, teach or suggest the specific combination recited in new claim 27.

New claim 28 recites, *inter alia*: a rotor disposed on a shaft, the rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft, and the rotor fins adapted to accelerate air radially outward from the rotor and through an outlet hole.

None of the cited references, taken singularly or in combination, teach or suggest the specific combination recited in new claim 28

New claim 35 recites, *inter alia*: providing a rotor including a plurality of rotor fins projecting radially outward from an outer surface of the shaft; and, via the plurality of rotor fins, accelerating air radially outward through a through

outlet hole, wherein a through inlet hole and the through outlet hole are in the same radial plane, and the radial plane is perpendicular to a motor housing axis.

None of the cited references, taken singularly or in combination, teach or suggest the specific combination recited in new claim 35.

Amendment to the Specification

Paragraph [0018] of the specification has been amended to recite the rotor fins as being axially upstream of the rotor 20 and radially outward from the *shaft 22*. Original paragraph [0018] erroneously stated the rotor fins as projecting radially outward from the rotor 20. This amendment of paragraph [0018] conforms the specification to the drawings, namely Figure 1. No new matter has been added to the specification.

Support for Amendment to Claims

Support for amendment to claim 2 can be found, for example, in original claim 1.

Support for amendment to claim 13 can be found, for example, in Figure 1.

Support for amendment to claim 21 can be found, for example, in Figure 1 and paragraphs [0018] and [0022] of the specification.

Support for New Claims

Support for new claims 27, 29-31, and 36 can be found, for example, in Figure 1.

Support for new claim 28 can be found, for example, at paragraph [0018] of the specification and Figure 1.

Support for new claim 32 can be found, for example, in Figure 2.

Support for new claim 33 can be found, for example, at paragraph [0021] of the specification and Figure 2.

Support for new claim 34 can be found, for example, at paragraph [0016] of the specification.

Support for new claim 35 can be found, for example, at paragraphs [0019] and [0023] of the specification.

The amended and new claims are fully supported in the specification and drawings as originally filed. No new matter has been added.

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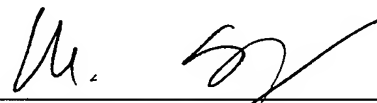
CONCLUSION

Reconsideration and withdrawal of the Office Action with respect to claims 2-21 and 23-26 is requested.

In the event the examiner wishes to discuss any aspect of this response, please contact the attorney at the telephone number identified below.

Respectfully submitted,

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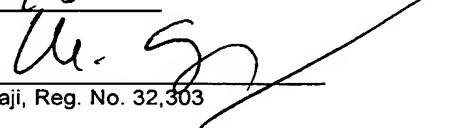
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